

#### ABSTRACT OF THE DISCLOSURE

An image sensor device and fabrication method thereof. An image sensing array is formed in a substrate, wherein the image sensing array comprises a plurality of photosensors with spaces therebetween. A first dielectric layer with a first refractive index is formed overlying the spaces but not the photosensors. A conformal second dielectric layer with a second refractive index is formed on a sidewall of the first dielectric layer. A third dielectric layer with a third refractive index is formed overlying the photosensors but not the spaces. The third refractive index is greater than the second refractive index. A light guide constructed by the second and third dielectric layers is formed overlying each photosensor, thereby preventing incident light from striking other photosensors.